CLAIM AMENDMENTS

Please amend claims 1-20 as follows:

1. (Currently Amended) A method of deblurring ~~an~~ a video image, comprising the steps of:

downloading a blurred video image comprising a plurality of ~~having~~ pixels into a systolic array processor, said systolic array processor comprising an array of processing logic blocks in parallel such that groups of said plurality of pixels arrive in each ~~respective~~ processing logic block of said array of processing logic blocks respectively ~~blocks~~;

sequentially exchanging data between said array of processing logic blocks by interconnecting said each processing logic block with only a predefined number of ~~the~~ processing logic blocks adjacent thereto; ~~and~~

providing an iterative update of said blurred video image by storing each pixel of said plurality of pixels in three planes within said systolic array processor wherein said iterative update occurs within a video frame update rate of said blurred video image; and

uploading ~~the~~ a deblurred video image.

2. (Currently Amended) The method of claim 1, wherein said three planes comprises said blurred video image, a blurred video image prediction error and a past deblurred video image wherein said array of processing logic blocks provide ~~providing~~ ~~an~~ said iterative update of said blurred video image by (i) providing feedback of said ~~the~~ blurred image prediction error using said ~~the~~ deblurred video image and (ii) providing feedback of said ~~the~~ past deblurred image estimate.

3. (Currently Amended) The method of claim 2, wherein said iterative update is implemented in said each processing logic block ~~blocks~~ by $u(n + 1) = u(n) - K*(H*u(n) - y_b) - S*u(n)$ where u comprises an ~~is the~~ ideal undistorted image, m and n comprise ~~are~~ column and row indices of an image pixel element, y_b (m,n) comprises an ~~is the~~ observed blurred image, * denotes a 2-D convolution, K comprises ~~is~~ a feedback update operator with a convolution kernel $k(m,n)$ and S comprises ~~is~~ a smoothing operator with a convolution kernel $s(m,n)$.

4. (Currently Amended) The method of claim 2, wherein said iterative update is implemented in said each processing logic block ~~blocks~~ by $u(n + 1; c) = u(n; c) - K*(H*u(n; c) - y_b(c)) - S*u(n;c)$ where $y_b(c) = y_d(j,k;c)$ comprises a ~~is the~~ 2-D array of color c intensities for said ~~the~~ blurred video image encompassing all pixels (j,k) in ~~the~~ said blurred video image and $u(n; c) = u(j,k,n;c)$ comprises a ~~is the~~ 2-D array of color c intensities for a ~~the~~ restored image estimate ~~estimates~~ at iteration number n.

5. (Currently Amended) The method of claim 1, wherein ~~said~~ each group of said groups of said plurality of pixels ~~processor groups pixel in groups that~~ comprises at least one pixel.

6. (Currently Amended) The method of claim 5, wherein said groups of said plurality of pixels comprises a group selected from 2 by 2 pixels, 3 by 3 pixels, and 4 by 4 pixels.

7. (Currently Amended) A device for deblurring an image, comprising:

~~an~~ a blurred video image source comprising a plurality of ~~having~~ pixels;

a systolic array processor adapted to download said blurred video image, said systolic array processor comprising an array of processing logic blocks in

parallel such that groups of said plurality of pixels arrive in each ~~respective~~ processing logic block of said array of processing logic blocks respectively, ~~blocks;~~ wherein said processor is ~~being~~ adapted to sequentially exchange data between said array of processing logic blocks by interconnecting each processing logic block of said plurality of processing logic blocks with only a predefined number of ~~the~~ processing logic blocks adjacent thereto[[;]] and wherein said systolic array processor is adapted to provide an iterative update of said blurred video image by storing each pixel of said plurality of pixels in three planes within said systolic array processor wherein said iterative update occurs within a video frame update rate of said blurred video image, and wherein said systolic array processor is further adapted to ~~including an~~ upload ~~for the~~ a deblurred video image.

8. (Currently Amended) The device of claim 7, wherein said three planes comprises said blurred video image, a blurred video image prediction error and a past deblurred video image and wherein said processor is adapted to ~~process logic blocks to~~ provide an iterative update of said blurred video image by (i) providing feedback of said ~~the~~ blurred video image prediction error using said ~~the~~ deblurred video image and (ii) providing feedback of said ~~the~~ past deblurred video image estimate.

9. (Currently Amended) The device of claim 8, wherein said systolic array processor includes an iterative update implemented in said each processing logic block ~~blocks~~ by $u(n + 1) = u(n) - K *(H *u(n) - y_b)S* u(n)$ where u comprises an ~~is the~~ ideal undistorted image, m and n comprise ~~are~~ column and row indices of an image pixel element, y_b (m,n) comprises an ~~is the~~ observed blurred image, * denotes a 2-D convolution, K comprises ~~is~~ a feedback update operator with a convolution kernel $k(m,n)$ and S comprises ~~is~~ a smoothing operator with a convolution kernel $s(m,n)$.

10. (Currently Amended) The device of claim 9, wherein said ~~the~~ operators *H, K*, and *S* are preloaded in said each ~~of the array~~ processing logic block ~~blocks~~.

11. (Currently Amended) The device of claim 8, wherein said iterative update is implemented in said each processing logic block ~~blocks~~ by $u(n + 1; c) = u(n; c) - K *(H *u(n; c) - y_b (c)) - S * u(n;c)$ where $y_b (c) = y_d (j,k;c)$ comprises a ~~is the~~ 2-D array of color c intensities for said ~~the~~ blurred video image encompassing all pixels (j,k) in ~~the~~ said blurred video image and $u(n; c) = u(j,k;n;c)$ comprises a ~~is the~~ 2-D array of color c intensities for a ~~the~~ restored image estimate ~~estimates~~ at iteration number *n*.

12. (Currently Amended) The device of claim 7, wherein ~~said~~ each group of said groups of said plurality of pixels ~~processor groups pixel in groups that~~ comprises at least one pixel.

13. (Currently Amended) The device of claim 12, wherein said groups of said plurality of pixels comprises a group selected from 2 by 2 pixels, 3 by 3 pixels, and 4 by 4 pixels.

14. (Currently Amended) A device for deblurring ~~an~~ a video image, comprising:

image means for providing a blurred video image comprising a plurality of ~~having~~ pixels;

systolic array processor means for processing said blurred video image and adapted to download said blurred video image, said systolic array processor means comprising an array of processing logic block means in parallel for processing groups of said plurality of pixels in each ~~respective~~ processing logic block of said array of processing logic blocks respectively, ~~blocks;~~ wherein said processor means is ~~being~~ adapted to sequentially exchange data between said array of processing logic block means by interconnecting said each processing logic block means with

only a predefined number of ~~the~~ processing logic block means adjacent thereto[[;]] and wherein said systolic array processor means is adapted to provide an iterative update of said blurred video image by storing each pixel of said plurality of pixels in three planes within said systolic array processor means wherein said iterative update occurs within a video frame update rate of said blurred video image, and wherein said systolic array processor means includes ~~including~~ means for uploading ~~the~~ a deblurred video image.

15. (Currently Amended) The device of claim 14, wherein said three planes comprises said blurred video image, a blurred video image prediction error and a past deblurred video image and wherein said systolic array processor means is adapted ~~to process logic blocks~~ to provide an iterative update of said blurred video image by (i) providing feedback of said ~~the~~ blurred video image prediction error using said ~~the~~ deblurred video image and (ii) providing feedback of said ~~the~~ past deblurred image video estimate.

16. (Currently Amended) The device of claim 15, wherein said systolic array processor means includes means for an iterative update implemented in said systolic array processing logic block means by $u(n + 1) = u(n) - K *(H *u(n) - y_b)-S* u(n)$ where u comprises an ~~is the~~ ideal undistorted image, m and n comprise ~~are~~ column and row indices of an image pixel element, $y_b (m,n)$ comprises an ~~is the~~ observed blurred video image, * denotes convolution, K comprises ~~is~~ a feedback update operator with a convolution kernel $k(m,n)$ and S comprises ~~is~~ a smoothing operator with a convolution kernel $s(m.n)$.

17. (Currently Amended) The device of claim 16, wherein said ~~the~~ operators H, K, and S are preloaded in said each ~~of the array~~ processing logic blocks.

18. (Currently Amended) The device of claim 15, wherein said iterative update is implemented in said each processing logic block ~~blocks~~ by $u(n + 1; c) = u(n; c) -- K *(H *u(n; c) -- y_b (c)) -- S * u(n;c)$ where $y_b (c) = y_d (j,k;c)$ comprises a ~~is the~~ 2-D array of color c intensities for said ~~the~~ blurred video image encompassing all pixels (j,k) in ~~the~~ said blurred video image and $u(n; c) = u(j,lc;n;c)$ comprises a ~~is the~~ 2-D may of color c intensities for a ~~the~~ restored image estimate ~~estimates~~ at iteration number n.

19. (Currently Amended) The device of claim 14, wherein ~~said~~ each group of said groups of said plurality of pixels ~~processor groups pixel in groups that~~ comprises at least one pixel.

20. (Currently Amended) The device of claim 19, wherein said groups of said plurality of pixels comprises a group selected from 2 by 2 pixels, 3 by 3 pixels and 4 by 4 pixels.